

# Ratio to Cents

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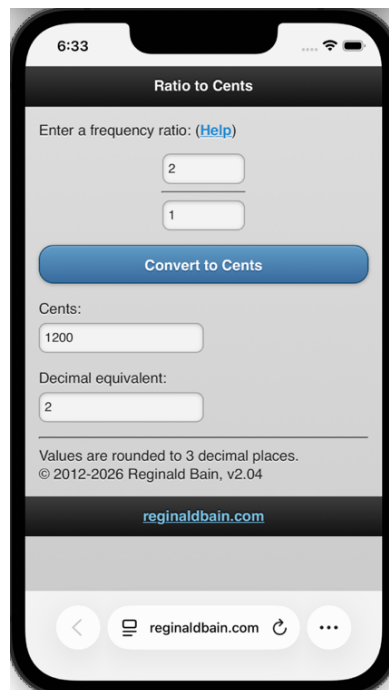
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*Ratio to Cents* is a simple mobile phone Web app that converts an interval frequency ratio to cents. The program utilizes the following conversion formula:

$$c = 1200 \log_2 \frac{f_2}{f_1}$$

where  $c$  is cents, and  $f_2/f_1$  is a pitch interval expressed as a frequency ratio. Enter a frequency ratio (e.g., 1/1, 2/1, 3/2, 4/3, 3/4, 5/4, 6/5, 9/8, 7/4, 81/64, 22/7, 81/80, 128/125, 442/440, 550/440, 531441/524288, etc.) and the program will report the ratio's *size in cents* and *decimal equivalent*. Ratios greater than 1/1 (upward pitch intervals) return a positive value. Ratios less than 1/1 (downward pitch intervals) return a negative value. In addition to whole-number ratios, decimal values (e.g., 1.059/1, 1.41421356/1, 1.618/1, etc.) may also be entered. All values are rounded to 3 decimal places. Ratio to Cents is available online at:

<https://www.reginaldbain.com/software.html>



## References

Bain, Reginald. 2012. "iPad Web App Development for Music Theory." *Association for Technology in Music Instruction* national conference paper presentation. San Diego, CA. Available online at: <https://reginaldbain.com/atmi12/>.